IN THE SPECIFICATION

Page 1, line 5 thereof, please amend the paragraph as follows:

This is a continuation -in-part application of Serial No. 08/974,351, filed 11/19/1997.

This invention relates to veterinary delivery devices for delivering medicaments, including pharmaceuticals or vaccines, to a plurality of poultry or other animals. In particular, this invention relates to a portable, electrically powered veterinary delivery system for reliably providing a precise amount of pharmaceuticals, or vaccine, rapidly to a plurality of fowl, porcine, ovine or other animals.

Page 1, line 23 thereof, please amend the paragraph as follows :

The present invention is directed to an automatic veterinary medicament delivery system that satisfies these needs for delivery of precise amounts of medicament to an individual animal or fowl. The medicament includes any fluid products for immunizing purposes or for treatment. The system provides rapid and consistent one-handed administration of the medicament, without fatigue-affected changes in the amount of medicament delivered, to large numbers of fowl, porcine, ovine, or other animals. An automatic veterinary medicament delivery system having features of the present invention comprises an electronic control unit having means for quickly adjusting the dosage of medicament to be delivered by injection. The veterinary delivery system includes several hand-held injection devices from which to choose, depending on desired use, each having a push-button trigger, at least one needle, a headlight, signal lights, optional dye marking means, and an optional mixing chamber for mixing medicaments at the time of delivery of the medicament, the hand-held injection devices being easily connected and disconnected by means of quick connect fluid couplers for being in fluid communication with the system and a nine-pin amp electrical connector for being in electronic communication with the control unit. One embodiment hand-held unit provides a single needle for injecting especially the ear of cattle. Another embodiment hand-held unit provides a single needle plus marking means. [A third] An additional hand-held unit provides two needles for

injecting two unmixed medicines simultaneously. [A fourth] One embodiment hand-held unit provides a single needle, but the hand-held unit is inverted with a pistol grip attached for use especially with thick-skinned animals, such as cattle or pigs. All of these hand-held units provide means to deter self-injection of the user. In some hand-held units, this safety device is in the form of an emergency stop button. In [the fourth] an additional hand-held unit, a safety interlock is provided that prevents injection until a retractable resilient member is forced to a second, retracted position, to complete an electrical circuit permitting injection to take place. In all of these delivery systems, a source of fluid medicament, tubing interconnecting the injection device and the medicament, an electrically powered pump in fluid communication with both the injection device and the medicament, actuation means for activating a pump forcing the medicament through the tubing from medicament source to the injection device for dispensing, are provided. A quick connect fluid coupler permits coupling of each hand-held unit to the pump. A nine-pin amp electrical connector connects the electrical power portion of each hand-held unit to the control unit. Also, a convenient carrying system is provided. Optional means for marking injected animals are also included. Methods for administering two medicaments simultaneously are also provided.

Page 3, line 7 thereof, please amend the paragraph as follows:

Manually depressing a trigger on the hand-held injection device of this delivery system, in conjunction with inserting a needle into the subject body, actuates the pump causing fluid to flow through the hollow needle accomplishing an injection. An emergency stop button is provided in case an error is made, ex. the needle goes through the ear, or through the ear and into the user's hand to prevent injection f a medicament into the user. This is an important deterrent to self-injection. An additional embodiment provides a safety interlock member which must be depressed to the needle hub to close the electrical switch which in turn actuates the pump causing fluid flow through the hollow needle only when the needle is fully [injected] inserted actuates an injection. This safety interlock is adjacent to the needle and positioned to extend to the length of the needle. This safety interlock is then depressed to the point adjacent to the needle hub as the needle is inserted. At this

juncture, an internal extended rod from the safety interlock closes the electrical circuit by means of a Hall-effect switch. This, in turn, actuates the pump to cause fluid flow through the needle. This feature also deters accidental self-injection. Injection cannot take place until the needle is fully inserted, thus enabling the operator to withdraw an accidental stab prior to injection taking place. The goal of both of the systems is operator safety. Self-injection is a very serious accident among vaccinating crews.

Page 4, line 27 thereof, please amend the paragraph as follows:

Fig. 2 is a perspective view of [the first] an embodiment hand-held unit of the medicament delivery system of **Fig. 1**;

Page 4, line 3 thereof, please amend the paragraph as follows:

Fig. 4 is a side perspective view of [a second] an additional embodiment hand-held unit of the medicament delivery system of **Fig.1**;

Fig. 5 is an end view of [a third] an alternate embodiment pistol grip hand-held unit;

Page 4, line 8 thereof, please amend the paragraph as follows:

Fig. 8 is a plan view of [the second] an alternate embodiment hand-held unit where two medicaments are pumped through two pumps simultaneously at the same rate;

Fig. 9 is a plan view of [the second] an alternate embodiment hand-held unit where two medicaments are pumped through two separate control units at differing rates;

Page 4, line 13 thereof, please amend the paragraph as follows:

Fig. 11 is a side view of [the third] an alternate embodiment pistol grip hand-held unit;

Fig. 12 is a plan view of [the fourth] an alternate embodiment hand-held unit where one medicament is injected and a dye pad applicator is present; and

Fig. 13 is a side view of [the fifth] an additional embodiment, pivoting hand-held unit, with

certain portions shown in cross-section.

Page 5, line 26 thereof, please amend the paragraph as follows:

Turning now to the drawings, in which like reference characters refer to corresponding elements throughout the several views, **Fig. 1** illustrates an electrically powered automatic veterinary medicament delivery system, shown generally at **20**. System **20** is housed in a container such as a back pack and includes a hand-held unit **40** in fluid communication, by means of conduit tubing **78**, with a medicament container **70**. A first embodiment hand-held unit **40**, has a single needle **56**, no dye means, is especially for use in injection of a medicament into the ear of a bovine. All of the hand-held units **40** have a generally cylindrical shape with a flattened surface **41** on which ,in embodiments [one through three,] are mounted both a trigger **42** and an emergency stop **44** button. [The fourth] An additional embodiment also has a trigger but no emergency stop. Also shown are a green LCD **48**, which lights to indicate an injection is in progress, and a red LCD **50** which lights to indicate that the medicament level is low. The "function" key pad **108** is touched on the control unit **110** to set the anticipated number of total count so that the low medicament bottle LCD lights up at the appropriate time, ex. when 90% of the doses have been given. Head lamp **46** is used to illuminate the area of injection, as well as an optional dye pad **172** along with the needle mount **58**, in actual use, a Luer lock, all mounted on a proximal surface **22** of the hand-held unit **40'''**. Entering this distal end **24** of hand-held unit **40'''** is tubing **82** containing medicament **84**, dye **86** and electrical power cords **88**. All of the various hand-held unit embodiments **40, 40', 40", & 40'''** look and work similarly. A pump **100**, which sits atop a control unit **110**, sucks up the medicament from within medicament container **70** through tubing **80** and forces the fluid medicament from pump **100** exiting through tubing **82** and continuing through conduit tubing **78** for delivery by the hand-held unit **40** through a hollow needle **56**. The control unit **110** utilizes an electronic dosage control **130**, shown in detail in **Fig.7**, to deliver a predetermined precise amount of medicament upon injection. Additionally, the electronic dosage control **130** provides means of changing the dosage

of these predetermined precise amounts of medicament. Control unit **110** also provides optional marking means. Marking dye, in an optional embodiment shown at **Figs. 2,3,& 5,** is delivered through dye means, such as by an applicator pad **172,** simultaneously with injection of the medicament, marking the individual poultry, porcine, ovine or other animal injected. Control unit **110** function key pad **108** has an on/off control of dye means. Control unit **110** also provides for counting the number of injections made.

Page 8, line 24 thereof, please amend the paragraph as follows:

Fig. 4 is a side perspective view of [a third] an alternate embodiment hand-held unit **40"**of the medicament delivery system of **Fig.1**. This embodiment has the same general shape as the first embodiment, namely hand-held unit **40"** having a generally cylindrical shaped body with a flattened dorsal surface **41** on which are mounted both a trigger **42** and an emergency stop **44** button. This embodiment adds a second needle **56'** and needle mount **58'** Luer lock to the proximal surface of the hand-held unit **40"**. Although the optional dye applicator pad is not shown, it will be understood that this dye applicator pad is an option on all of the hand-held units. Also not shown in this view but understood to be mounted on the hand-held unit **40"** is an additional light indicating that an injection is in progress similarly to light **52** in **Fig. 3**. Two needles **56, 56'** are needed with this embodiment because two medicaments that may not be mixed are being injected, as indicated by the two medicament tubings **82, 82'** . Quick connect fluid [coupleres] couplers **196** are mounted on the terminal ends of both medicament tubings **82, 82'** and dye tubing **86, 86'** to permit quick, convenient fluid connection of this hand-held unit **40"** to control unit **110**. If the dosage is the same for both medicaments, a second pump**100'** can be mounted atop the first pump **100**, as shown in **Fig. 8,** connected to a hand-held unit **40"**. The two pumps, **100, 100'** piggy backed atop the other, are interconnected by an drive shaft **134** whereby the pumps turn at the same rate of speed delivering identical amounts of medicament. If, however, different dosages of the two medicaments is needed, due to differences in viscosity or potency, or the like, two control units, **110, 110'** would be needed, as shown in **Fig. 9**. The tubing from both units would be combined so only

one hand-held unit **40"** is needed. Although only one processing of the subject animal occurs, two injections of different un-mixed medicaments are given simultaneously to the same subject animal.

Page 10, line 12 thereof, please amend the paragraph as follows:

Trigger **42** is in electrical communication with pump **100**. In [the fourth] an alternate embodiment of hand-held injection device **40"'** trigger **42** must be depressed, and the needle **56** must be fully inserted, to complete the electrical circuit in the Hall effect switch which actuates the pump **100** and results in an injection. This hand-held injection device **40"'** has a safety interlock **152**. The other embodiments, **40, 40'& 40"** have an emergency stop button **44**, although a safety interlock **152** could be used on all embodiments. At this time, a safety interlock is not deemed necessary on hand-held injection device **40** because it is primarily used on the ears of cattle where the needle is parallel to the ear. A safety interlock would not have any animal body part to urge the interlock to it's second, retracted, position. Also at this time, a safety interlock is not deemed necessary on hand-held injection device **40'** because this embodiment is primarily used on soft-tissued animals such as poultry where again the safety interlock would not have a substantial body part to urge the interlock to it's second, retracted, position. A dye source is indicated at **60** with its associated tubing **86** which interconnects, again by a quick connect fluid coupler, to conduit tubing **78** that is in fluid communication with hand-held injection device **40"'**.

Fig. 6 is an external illustration of the control unit **110** of the medicament delivery system **20** of this invention with pump **100** mounted on top. In all embodiments, control unit provides electrical power to hand held units **40** as well as electronic information[is] as set in electronic control to control dosage, dye on/off, and amount, injection count and low medicament level as well as the automatic reverse feature following each injection. A nine-pin amp electrical connector **94** connects the electronic control unit **110** to any of the hand-held injection devices **40**. A four-pin amp electrical connector **122** connects the electronic control unit **110** to the dye pump. Another four-pin amp connector **124** connects the control unit **110** to the battery **126**. These different amp electrical

connectors protect against accidental connection of the wrong device to the outlet at the control unit **110**. Display **112** is an LCD display which lights up to illustrate the different modes of the control unit **110**, namely, the amount of the selected dosage, the amount of dye used per subject animal, and the count of injections made. The dosage, which is controlled by setting the number of pulses that are emitted by the electronic photo optic sensor **138** to accurately inject the desired dose, depends on the viscosity and temperature of the medicament and must be calculated at each injection session. For example, very low viscosity liquid, such as water, requires 44 pulses per 1.0 milliliter (ml) while on the other hand, dosages of high-viscosity vaccines could require as many as 110 pulses per 1.0 milliliter (ml). The number of pulses in an injection is manually controlled by the up and down arrows **106** on the face of control unit **110**, can be set at each injection session. Whether or not to use dye and the amount of dye used can also be selected by control unit **110**. The amount of dye to be used can be set in 0.1 second increments. The injection count can be re-set to zero after each injection session by means of the up and down arrows **106**. Switches on the face of control unit **110** include an on-off power switch **114**, pump switch **116** that controls forward or reverse pump, and light switch **120** which controls power to the head lamp **46**.

Page 13, line 3 thereof, please amend the paragraph as follows:

Fig. 8 illustrates [the third] an alternate embodiment hand-held injection device **40"** used to simultaneously inject two medicaments of similar viscosities. Because these two medicaments may not be mixed, for whatever reason, they are run through separate pumps, **100 and 100'** which are interconnected by an extension of drive shaft **134**, shown in detail in **Fig. 7**. Tubing **82 & 82'** carries the pumped medicaments separately to hand-held injection device **40"** for simultaneous injection. **Fig. 9** illustrates the third embodiment hand-held injection device **40"** in the case of desiring to simultaneously inject two medicaments of different viscosities. Again, these two medicaments are not be to mixed, for whatever reason, and are run through two separate control units, **110 & 110'** before being run through tubing **78 & 78'** into hand-held injection device **40"**.